

enter the eye, to have their pulses made *oblique* to their progression, and consequently each Ray to have potentially *superinduc'd* two proprieties, or colours, *viz.* a *Red* on the one side, and a *Blue* on the other, which notwithstanding are never actually manifest, but when this or that Ray has the one or the other side of it bordering on a dark or unmov'd *medium*, therefore as soon as these Rays are entred into the eye, and so have one side of each of them bordering on a dark part of the humours of the eye, they will each of them actually exhibit some colour; therefore ADC the production GACH will exhibit a *Blue*, because the side CD is *adjacent* to the dark *medium* CQDC, but nothing of a *Red*, because its side AD is *adjacent* to the enlightned *medium* ADF A: And all the Rays that from the points of the luminous body are collected on the parts of the *Retina* between D and F shall have their *Blue* so much the more *diluted* by how much the farther these points of collection are distant from D towards F; and the Ray AFC the production of KCAI, will exhibit a *Red*, because the side AF is adjacent to the dark or quiet *medium* of the eye APFA, but nothing of a *Blue*, because its side CF is *adjacent* to the enlightned *medium* CFDC, and all the Rays from the intermediate parts of the luminous body that are collected between F and D shall have their *Red* so much the more *diluted*, by how much the farther they are distant from F towards D.

Now, because by the refraction in the *Cornea*, and some other parts of the eye, the sides of each Ray, which before were almost parallel, are made to *converge* and meet in a point at the bottom of the eye, therefore that side of the *pulse* which preceded before these refractions, shall first touch the *Retina*, and the other side last. And therefore according as this or that side, or end of the pulse shall be impeded, accordingly will the *impressions* on the *Retina* be varied; therefore by the Ray GACH refracted by the *Cornea* to D there shall be on that point a stroke or impression confus'd, whose weakest end, namely, that by the line CD shall precede, and the stronger, namely, that by the line AD shall follow. And by the Ray KCAI refracted to F, there shall be on that part a confus'd stroke or impression, whose strongest part, namely, that by the line CF shall precede, and whose weakest or impeded, namely, that by the line AF shall follow, and all the intermediate points between F and D will receive impression from the *converg'd* Rays so much the more like the impressions on F and D by how much the nearer they approach that or this.

From the consideration of the proprieties of which impressions, we may collect these short definitions of Colours: That *Blue* is an impression on the *Retina* of an oblique and confus'd pulse of light, whose weakest part precedes, and whose strongest follows. And, that *Red* is an impression on the *Retina* of an oblique and confus'd pulse of light, whose strongest part precedes, and whose weakest follows.

Which proprieties, as they have been already manifested, in the *Prisme* and falling drops of Rain, to be the causes of the colours there generated, may be easily found to be the *efficients* also of the colours appearing in thin *laminated* transparent bodies; for the explication of which, all this has been premised.

And that this is so, a little closer examination of the *Phenomena* and the *Figure* of the body, by this *Hypothesis*, will make evident.

For first (as we have already observed) the *laminated* body must be of a determinate thickness, that is, it must not be thinner then such a determinate quantity; for I have always observ'd, that neer the edges of those which are exceeding thin, the colours disappear, and the part grows white; nor must it be thicker then another determinate quantity; for I have likewise observ'd, that beyond such a thickness, no colours appear'd, but the Plate looked white, between which two determinate thicknesses were all the colour'd Rings; of which in some substances I have found ten or twelve, in others not half so many, which I suppose depends much upon the transparency of the *laminated* body. Thus though the consecutions are the same in the scum or the skin on the top of metals; yet in those consecutions the same colour is not so often repeated as in the consecutions in thin Glasse, or in Sope-water, or any other more transparent and glutinous liquor; for in these I have observ'd, *Red, Yellow, Green, Blue, Purple; Red, Yellow, Green, Blue, Purple; Red, Yellow, Green, Blue, Purple; Red, Yellow, &c.* to succeed each other, ten or twelve times, but in the other more *opacous* bodies the consecutions will not be half so many.

And therefore secondly, the *laminated* body must be transparent, and this I argue from this, that I have not been able to produce any colour at all with an *opacous* body, though never so thin. And this I have often try'd, by pressing a small *Globule* of *Mercury* between two smooth Plates of Glasse, whereby I have reduc'd that body to a much greater thinness then was requisite to exhibit the colours with a transparent body.

Thirdly, there must be a considerable reflecting body adjacent to the under or further side of the *lamina* or *plate*: for this I always found, that the greater that reflection was, the more vivid were the appearing colours.

From which Observations, it is most evident, that the reflection from the under or further side of the body is the principal cause of the production of these colours; which, that it is so, and how it conduces to that effect, I shall further explain in the following Figure, which is here described of a very great thickness, as if it had been view'd through the *Microscope*; and 'tis indeed much thicker than any *Microscope* (I have yet us'd) has been able to shew me those colour'd plates of Glasse, or *Muscovite-glasse*, which I have not without much trouble view'd with it; for though I have endeavour'd to magnifie them as much as the Glasses were capable of, yet are they so exceeding thin, that I have not hitherto been able positively to determine their thickness. This Figure therefore I here represent, is wholly *Hypothetical*.

Let ABCDHF in the sixth Figure be a *frustum* of *Muscovy-glasse*, thinner toward the end AE, and thicker towards DF. Let us first suppose the Ray *agbb* coming from the Sun, or some remote luminous object to fall *obliquely* on the thinner plate BAE, part therefore is reflected back, by *eghd*, the first *superficies*; whereby the perpendicular